

CLAIMS

1. A target for photogrammetric analytic measurement, which is photographed with an object by a camera in said photogrammetric analytic measurement, said target having standard points that are clearly discerned in a photographed picture, and a calculation of photographing positions of said camera being performed by determining a positional relationship of each of said standard points in said photographed pictures, said target comprising:

a first standard point member defining a first standard point included in said standard points;

a second standard point member defining a second standard point included in said standard points;

a third standard point member defining a third standard point included in said standard points; and

assistant point members respectively defining assistant points that are clearly discerned in said photographed picture;

wherein distances between each of said first standard point and said second standard point and said third standard point, are predetermined;

a first straight line connecting said first standard point and said second standard point, and a second straight line connecting said second standard point and said third standard point are inclined at a predetermined angle; and

at least one of said assistant points are positioned on said first straight line and said second straight line.

2. The target of claim 1, wherein a distance between said first standard point and said second standard point equals a distance between said second standard point and said third standard point.

3. The target of claim 1, wherein said predetermined angle is right angle.

4. The target of claim 1, wherein, said first standard point, said second standard point and said at least one of said assistant points being positioned on said first straight line, are positioned at equal spaces on said first straight line, and said second standard point, said third point and said at least one of said assistant points being positioned on said second straight line, are positioned at equal spaces on said second straight line.

5. The target of claim 4, wherein a number of said assistant points on said first straight line is different from a number of said assistant points on said second straight line.

6. The target of claim 5, wherein said number of said assistant points on said first straight line is two, and said number of said assistant points on said second straight line is one.

7. A target for photogrammetric analytic measurement, which is photographed with an object by a camera in said

photogrammetric analytic measurement, said target comprising:

a first bar and a second bar that are connected to each other;

at least three standard point members that are fixed on
5 said first bar and said second bar, said at least three standard
point members lying on one plane; and

non-reflecting members that are respectively attachable
to and removable from said at least three standard points.

8. The target of claim 7, wherein said at least three standard
10 point members respectively comprise a circular portion, a
diameter of which substantially equals the width of said first
bar and said second bar.

9. The target of claim 8, wherein each of said non-reflecting
members is a circular plate, and a circular opening, a diameter
15 of which substantially equals said diameter of said circular
portion of said at least three standard point members, is formed
at a center portion of said circular plate.

10. The target of claim 9, wherein a reflecting sheet, by which
a reflecting amount of incident light thereon is increased, is
20 attached on a surface of said circular portion, and a non-
reflecting sheet, by which a reflecting amount of incident light
thereon is reduced, is attached on a surface of said non-
reflecting members, said surface of said circular portion and
said surface of said non-reflecting members being on a side
25 opposite to a side of said first bar and said second bar, when

said non-reflecting members are respectively attached to said standard point members.

11. The target of claim 10, wherein said reflecting sheet and said non-reflecting sheet are placed on said one plane.

5 12. The target of claim 9, wherein one of each of said at least three standard point members and each of said non-reflecting members comprises a ferromagnet, and another of each of said at least three standard point members and each of said non-reflecting members comprises a magnetic material.

10 13. The target of claim 12, wherein each of said at least three standard point members comprises a magnet that is ring shaped, a center point of which is coincident with a center point of said circular portion, and each of said non-reflecting members comprises a metal material that is attached to said magnet by
15 magnetic force, said metal material being placed around said circular opening, on a surface opposite to said surface to which said non-reflecting sheet is attached.

14. The target of claim 12, wherein a reference plane is determined by said standard point members, said target further
20 comprising:

a first tilt sensor that senses a first tilt angle to a horizontal plane around a first axis on said reference plane;

a second tilt sensor that senses a second tilt angle to said horizontal plane around a second axis which is
25 perpendicular to said first axis, on said reference plane;

an azimuth sensor that senses an azimuth; and

a transmitting device that transmits data of said first tilt angle, said second tilt angle and said azimuth by wireless.

15. The target of claim 14, wherein said non-reflecting
5 members are made of a material through which an electric wave can transmit.

16. The target of claim 14, wherein said azimuth sensor is placed intermediately between two of said at least three standard point members, which are adjoining.

10 17. The target of claim 7, wherein said first bar and said second bar are connected in such a manner that one end of said first bar and one end of said second bar are rotatably connected;

when said target is in an operational position, said first bar and said second bar are fixed in such a manner that said
15 first bar and said second bar are perpendicular to each other; and

when said target is not in said operational position, said first bar and said second bar are fixed in such a manner that said first bar and said second bar are substantially parallel
20 to each other.

18. The target of claim 17, further comprising:

a fixing member that fixes a relational position between said first bar and said second bar in such a manner that said first bar and said second bar are perpendicular to each other,
25 when said target is in said operational position;

a hinge that rotatably connects said fixing member to said first bar;

a lock hinge by which said fixing member is attachable to and removable from said second bar.

5 19. The target of claim 18, further comprising:

a first fixing mechanism that fixes said second bar to said first bar such that said second bar is parallel to said first bar when said target is not in said operational position;

a second fixing mechanism that fixes said fixing member
10 to said first bar such that said fixing member is placed between
said first bar and said second bar when said target is not in
said operational position.